PORT AND SOLID WASTE DEPARTMENT

Brown County

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CHARLES J. LARSCHEID
PORT AND SOLID WASTE DIRECTOR

PROCEEDINGS OF BROWN COUNTY SOLID WASTE BOARD

A regular meeting was held on **January 18, 2010**, 1:30 p.m., at the Brown County Materials Recycling Facility, 2561 S. Broadway, Green Bay, WI.

1. Call to Order – meeting was called to order by Chair Strenski 1:30pm.

2. Roll Call

Present:
Mike Strenski, Chair
Jim Rasmussen, Vice-Chair
Chuck Rhyner
Norb Dantinne
Mike Fleck
Bud Harris
John Katers
Allison Swanson (arrived at 1:35pm)
Dawn Goodman

Also Present:
Charles Larscheid, Brown County Port & Solid Waste Dept.
Chad Doverspike, Brown County Port & Solid Waste Dept.
Wess Damro, Brown County Port & Solid Waste Dept.
Dale DeNamur, Brown County Purchasing
Marc Hess, IEP Development
Ben Meeuwsen, Fourinox
Pete King III, OSGC
Kevin Cornelius, OSGC
Todd Parczick, Alliance Construction
Tom Perock, Alliance Construction

3. Approval/Modification – Meeting Agenda
A motion to approve the agenda was made by Norb Dantinne and seconded by Mike Fleck. Unanimously approved.

4. Approval/Modification – Meeting Minutes November 16, 2009
A motion to approve the minutes with two minor changes *(in Agenda Item #2 show Strenski as Chair and in Agenda Item #12 correct spelling of Rasmussen)* **was made by Norb Dantinne and seconded by Mike Fleck.** Unanimously approved.

5. MRF Repair Bid #1393 Results Tabulation – *Request for Approval*
A handout was distributed outlining the details of the project which include removing MRF equipment and opening the area for future use. Staff noted that the 12' and 10' walls were not included in this amount bid but were shown as future repairs. Because this is a bid, the lowest qualified bid receives the award. An amount of $80,000 was previously approved for these repairs. If approved by the Board, the bid would go before Planning, Development & Transportation (PD&T) and then the County

Board for final approval. The Board questioned whether the current tip floor may need to be expanded in the future. Staff indicated that although the space available may be tight at times, adequate contingency plans are in place. The Board also requested confirmation from staff that the contractors fully understood the scope of the work being requested in the bid. Staff confirmed the bid was thoroughly explained to all contractors. Lowering the floor where the semi-truck backs in to allow the loader to unload a full bucket each time reducing time and labor costs was questioned. Staff indicated although this was considered, the cost of $350,000 to save only 10 to 15 minutes per load wasn't justified.

A motion to award the bid to United Construction for Base Bid Add 6', Option 1 Ret. Wall and Option 2 Floor Repair was made by Allison Swanson and seconded by Chuck Rhyner. Unanimously approved.

6. Brown County Electronics Collection

An email was sent to customers and urban people summarizing the 2010 electronics law. The current procedure at the Port & Solid Waste Department and how the new law affects the department were discussed. The current charge to Brown County residents is $0.20 per pound for electronics. Businesses are charged $0.40 per pound. At $0.20 per pound the facility's' disposal costs are covered, however, at $0.40 per pound the disposal costs, labor and operating costs are covered. Electronics are 30% of the material collected at HHW (236,000# collected in 2009). As public awareness increases and legislation changes, the amount of electronics collected increases. Local governments are now responsible for providing education to their residents. The difference between covered electronic devices (CEDs) and eligible electronic devices (EEDs) as well as the guidelines for each was also explained. Effective September 1, 2010 any eligible EEDs are banned from being landfilled. The law does not have any language addressing charges for collection and there are no requirements in the law for hazardous waste facilities to collect electronics. Brown County's HHW can continue to accept electronics without any changes. Staff has discussed options with three companies. Lamp Recyclers, who is the current contractor, does not anticipate an increase in their rates and per the contract also takes the HHW facility's CFLs and batteries. A recycling company out of Minnesota works with manufacturers directly and can offer CEDs (residents & schools) free disposal. Non-CED and business electronics are $0.14 per pound. In the EED category BC HHW has some materials that might have to cover under cost as well as anything from a non-resident or non-school. The third company is Universal Recycling Technologies (URT) who offers free disposal of CEDs and EEDs from residential and schools but has a cost for materials collected from businesses. Since business materials are under state contract that makes things easier for Brown County HHW.

BC HHW also has the option of going to a referral type program and get out of collection of electronics entirely. Lamp Recyclers, Best Buy, Milwaukee PC and BC HHW have all registered as collection spots in Brown County. Staff is recommending a 6-month contract with URT and piggyback on the state contract prices for business materials thus eliminating the need to go out for bid or proposal process. Staff also recommended maintaining the current contract with Lamp Recyclers for CFLs and batteries until it expires on 9/30/10 at which time a new bid could be put out these materials.

The Board asked what educational efforts are going to be made to the public. Staff indicated most information will be provided by the State but P&SW will be making our customers aware of the changes. Staff requested direction from the Board as to the role they want P&SW to play.

Collection of electronics at the Transfer Station would be difficult and staff suggested customers be referred. Staff reminded the Board that the HHW facility was originally started to collect hazardous and toxic waste and staff does not want the majority of staff time and space to be used for electronics. Although staff recommended the cost to residents be reduced to $0.00, the Board expressed concern regarding reinstating a cost for disposal in the future should the facility realize operating costs are not being met. The Board requested the residential fee for electronics be kept at $0.20 per pound but to go with the new contractor. The price can be adjusted as needed to cover disposal costs.

7. Oneida Seven Generation Corps Waste Gasification Initiative Negotiation & Approval Strategy – *Request for Approval*

A memo included in the packet outlined the discussions which have taken place over the last year with the Oneida Seven Generation Corps (OSGC). Introduced were Pete King and Kevin Cornelius from OSGC, Marc Hess from IEP Development, as well as Tom Perock and Todd Parczick from Alliance Construction. Currently talks have stalled as Brown County's Purchasing Department policy indicates projects must go out for bid, RFP or RFQ. However in this situation, the project didn't seem to fall into any of these categories. Brown County Corporation Counsel was asked for his opinion on this as well as Purchasing. Fred Moore, Corporation Counsel for the County Board was also involved as the County Board establishes the requirements for contracted services. John Luetcher, Brown County Corporation Counsel gave his opinion that Brown County could side step the proposal and bid requirements with approval of contract guidance from the Solid Waste Board, PD&T and the Administrative Committee to begin negotiations with OSGC for this project. Any contract with OSGC would need approval from the Solid Waste Board, PD&T and County Board. The project would be designed, financed, constructed and operated by OSGC.

The project was explained to the Board by Pete King. OSGC is owned by the Oneida Tribe however business will be done as an entity. OSGC will work directly with Brown County. Brown County Executive Hinz, Outagamie County and Winnebago County have all been kept apprised of the project. A handout explaining the technical side of the project was distributed and explained in detail by Todd Parczick. The facility will run 24/7 and create 24 to 30 jobs per plant. OSGC is requesting 150 tons per day minimum be allocated to the project in order to make the project viable. The fuel sources are tires, waste, garbage, etc. heated in a chamber with no oxygen to 1600 degrees, pressurized, with no flame. The process has been tested and there are minimal to zero emissions. Landfill gas can be incorporated into it which eliminates the flare currently at the landfill. The existing scale at Transfer Station will be used and a facility will be built on adjacent property. A 5 megawatt project saves 140,000 cubic feet in the landfill annually. The end result is an 85% to 90% reduction in landfill volume and the end material is similar to fly ash from a coal fire plant but without the arsenic and is of a higher quality which has been accepted into concrete manufacturing. Although no commitment has been made on this project, OSGC's goal is to work in partnership with the County to create value for both.

Staff believes that Brown County will be able to work with Oneida within the guidelines of the Tri-County agreement. There are financial and operational risks which will be part of the negotiations. Theoretically ten years down the road OSGC may be the alternative to sighting another landfill. It is also feasible that waste materials currently in the landfill could be removed and used as fuel. Air quality issues were discussed and OSGC noted the system exceeds all California Clean Air Standards. Hobart has been involved in the talks and has been very supportive of the project; however, this has not gone to before the Hobart Board. Ashwaubenon, Town of Lawrence and Oneida have also been made aware of the project

A motion was made by Allison Swanson and seconded by Dawn Goodman directing staff to continue negotiations with OSGC and bring back an agreement. Unanimously approved.

A negotiating committee of Chad Doverspike, Chuck Larscheid, County Executive Assistant Jamie Sellen, Mike Strenski, Mike Fleck, Bernie Erickson and John Katers was formed.

8. Gas-to-Energy Facility – *Update*

The GTE Facility has been in operation since March 2009. Staff reviewed the highlights of the GTE operation from 2007 until present. Also presented was a side-by-side comparison of the original GTE design versus the actual design in place currently:

Original	*Actual*
Flow 1000 cfm	Flow 500 to 520 cfm
2 engines t 925 kw	2 engines at 700 kw
12 month estimated gross revenue to Brown County $901,000	9 month actual gross revenue to Brown County $618,000

The Feasibility Study showed a lower cost per kw rating which is a positive. A total of $720,000 is anticipated for 2010 and staff is confident that amount will be reached.

Monitoring the entire landfill is performed two times per month, with certain wells being monitored done 2 or 3 times per week. Foth did an overall troubleshooting of the gas system and vacuum system and did not find any major design issues. Decreasing the size of the blower may decrease Brown County's electrical costs. Staff answered the Board's questions regarding how the additional items/work orders were being paid; why original estimates were so far off; and the anticipated payback period. Even though the net revenues are less than projected, the project will pay itself off and possibly still earn a profit.

9. Director's Report

- *Port Budget Adjustment*
  Due to a joint unrestricted cash fund between Port and Solid Waste, it was discovered that the Port Department has, over several years, spent $438,000 which was actually Solid Waste monies. The Harbor Commission approved repayment of these funds to the Solid Waste Department unrestricted cash fund.
- *Oil Filter Ban*
  State of Wisconsin has passed a ban on oil filters from landfills. Associated Recyclers of Wisconsin (AROW) published a flyer indicating effective December 2010 oil filters will be banned from all landfills. This information will need to be passed onto Brown County's customers. Staff believes the private sector will be responsible for providing an alternative recycling option. Filters can be brought to the HHW facility.
- *Engineering Consultant*
  The engineering consultant RFP is due January 19, 2010. The approvals needed for a new contract for an engineering consultant will not be in place prior to the current contract with Foth expiring in February 2010. Staff will negotiate with Foth to extend their current contract in the interim. Chuck Larscheid, Chad Doverspike and Mike Strenski agreed to serve on a committee to oversee the engineering consultant RFP. The winning RFP will be brought to the Solid Waste Board in February for review and approval. Approximately 10 engineering firms attended the walk-through.
- *Environmental Monitoring Quote*
  This quote is for a laboratory analysis separate from the current consulting contract. Due 2/5/10, this quote will not require board approval. An internal committee of Chad Doverspike, Chuck Rhyner and Chuck Larscheid was formed.
- *MRF Clean-up*
  All sorting equipment has been removed, except for the baler which will be kept for future use. Cleaning and repairs totaled $46,400; work on the push wall/retaining wall and tip floor totaled $37,000; repair and/or replacement of loading docks is estimated at $18,000; cleaning and painting of the office area totaled $2000. A fire alarm system is being installed and everything in the MRF will be brought up to code. Any additional money will be used for landscaping.
- *Recycling Intern*
  Hired short-term recycling intern Zach Buege to put together information on social interactions to get recycling information out. To be more proactive.
- *Energy Efficiency Committee*
  Brown County is presently looking at a grant opportunity to install in solar panels and/or windmills in County. Staff is also doing a feasibility study on investment of $30,000 for a MET tower at the Brown County East Landfill to measure wind potential. Currently Brown County is paying electrical costs at the East Landfill since any electricity produced by the GTE facility is being sold. The above-mentioned grant requires that the windmill-produced electricity be used by the operating entity and not sold. The area around the East Landfill has one of the highest wind speeds in the County. Staff will keep the Board aware of any future developments.

- *DePere and Ashwaubenon Recycling*
  The City of DePere has ended their agreement with One Source and is again bringing their commingled material to the MRF. The Village of Ashwaubenon is still under agreement with One Source but has asked Brown County about the possibility of bringing their single stream material to the Brown County MRF occasionally due to a backup or shutdown at One Source Recycling. In good faith, Brown County has agreed to accommodate Ashwaubenon but the non-contract rate will be used.
- *Greenhouse Gas Report*
  A newly-released Environmental Protection Agency (EPA) rule requires each source of greenhouse gas to gather and report data, for landfills. Both of Brown County's landfills are affected under the new rule. Through 3/31/10 reporting is allowed using the best available methods but as of 4/1/10 data must be reported according to the EPA requirements. Staff attended a presentation on the requirements and believes Brown County is online with what is required.
- *Former Board Member*
  Boyd Possin, a former board member passed away recently.

10. Such Other Matters as Authorized by Law
The Board asked the current status of the accounts in arrears discussed at a previous meeting. Staff indicated that although a judgment had been placed against Larry's hauling who owes Brown County over $200,000; staff is not aware of any other action taken by Brown County Corporation Counsel.

11. Adjourn
Motion to adjourn was made by Mike Fleck and seconded by Norb Dantinne. Unanimously approved. Meeting adjourned at.

Mike Strenski, Chair
Solid Waste Board

Charles Larscheid, Director
Port & Solid Waste Department

MJ 2/2/10

Project would turn city trash into energy

Gasification technology is key in proposed plant

By THOMAS CONTENT
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Trash would be converted into electricity at Project Apollo, a renewable energy project proposed for Milwaukee's north side, developers said Tuesday.

Alliance Federated Energy announced plans to develop a $225 million renewable energy plant that would create 250 construction jobs and 45 full-time jobs. The first phase of the project is expected to be running by 2013.

The plant would use technology developed by Westinghouse Plasma Corp. of Madison, Pa., to convert the waste at high heat into a synthetic gas, or syngas. That, in turn, could be used as a fuel to generate power.

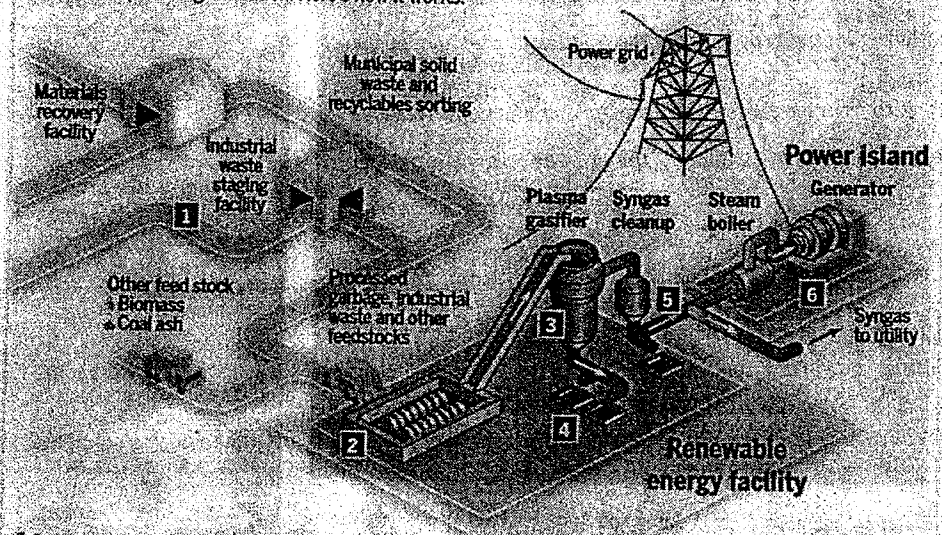
The first phase of the renewable energy facility is expected to process about 1,200 tons of municipal and industrial waste per day. That would generate 25 megawatts of electricity, or enough to power roughly 20,000 typical homes, according to Alliance Federated Energy. A second phase is envisioned that would generate another 25 megawatts of power, company spokesman Josh Morby said.

Alliance is a Milwaukee-based company that focuses on developing

Please see APOLLO, 7A

Power from trash

A $225 million project proposed for Milwaukee would convert garbage to energy through a process known as plasma gasification. Here's how it works.



1 Solid waste is delivered to the facility where recyclables are removed from the waste stream.

2 The waste is then fed into a shredder and moves into the plasma gasifier vessel.

3 Plasma torches use extreme heat to vaporize the waste. It is reduced to hydrogen and carbon monoxide to form "syngas."

4 Anything that cannot be gasified forms a slag that can be recycled for use in construction materials.

5 The gas cools and other by-products are removed, including sulfur, which can be sold commercially.

6 The syngas then can be converted to fuel to generate electricity.

Source: Alliance Federated Energy

Graphic by: Lou Saldivar/lsaldivar@journalsentinel.com and Enrique Rodriguez/erodriguez@journalsentinel.com

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APOLLO

City site possible for energy converter

and financing renewable energy projects. The company was founded in 2005, and Apollo is its first announced project.

The location of the project hasn't been announced, but the developer is planning to locate in Milwaukee.

Asked if the company is considering the former Tower Automotive site in Milwaukee, Morby said, "We have an option on a site that's approximately 25 acres on the north side of Milwaukee, but we're in discussions with the DNR on other potential brownfield sites in the city."

Alliance executives have met with representatives of the state's Office of Energy Independence to explore funding options for the project, Morby said.

"This commercially proven technology is the ultimate in recycling," Christopher Maloney, Alliance chief executive, said in a statement. "And we are pleased to be building our first project right here in Wisconsin, a state committed to promoting environmental stewardship and technological innovation."

Like many renewable energy developments, the project is small, and would generate less than 5% of the electricity being generated from the coal-fired power plant that We Energies opened Tuesday in Oak Creek.

The Apollo announcement was praised by Gov. Jim Doyle, who has been pushing development of more renewable energy in the state.

"We are pleased that AFE has selected Wisconsin for their first renewable energy project," Doyle said in a statement. "This technology has real potential to help us address the growing need for clean renewable power. Project Apollo will create new clean energy jobs in our state, reduce the need for continued landfilling of our wastes, and reduce greenhouse gases."

Garbage-to-energy projects in the past have involved incinerators, which raise environmental concerns because of the pollutants released from incinerator smokestacks. But this project would not involve burning trash.

Instead, the process uses plasma, a highly ionized or electrically charged gas. Plasma torches similar to those used in some foundries are used to create intense heat, which then converts solid or liquid wastes into gas.

The company wants to pursue an agreement with an electric utility to buy the power that would be generated at the Milwaukee site.

Alliance said it has received initial commitments from Badger Disposal of Wisconsin to supply about 30% of the waste material needed for the energy project. Badger Disposal is an industrial waste management services company. Discussions are under way concerning the sale of the power and gas.

Alliance Federated Energy said it will work with Aecom Technology Corp., which will handle permitting for the project, as well as CorVal-Ryan, a Minnesota firm, to design and build the facility.

"We believe that plasma gasification technology has the potential to be a major player in the renewable energy market and are excited to be working with AFE on their Apollo Project," said Bob Cutshall, president of CorVal-Ryan. "We have a number of plasma gasification-based renewable energy projects in design or under construction and see that number growing in the coming years."

Several plasma gasification facilities are operating around the world, but there are no commercial plants operating yet in the United States, Alliance spokesman Morby said.

A large project using the technology has been proposed to retrofit a Massachusetts coal-fired power plant to burn biomass in addition to coal. Other projects using the technology are in the planning stages in International Falls, Minn.; New Orleans; and Tallahassee, Fla.

Plasma gasification is also being used at an ethanol plant being developed by Illinois-based Coskata in Pennsylvania. In addition, several projects are in development in Asia, including a plant in Japan that converts metal left over from shredded cars into electricity. The technology can use fly ash created by the process of burning coal, as well as industrial waste or household trash, to create gas, Morby said.

"This commercially proven technology is the ultimate in recycling."

Christopher Maloney,
Alliance Federated Energy CEO

Solid Waste Management in the United States

| Harvey W. Gershman |

Almost 40 years after Earth Day, AND STILL MORE TO DO.

IN APRIL 1970, THE FIRST EARTH DAY DREW national attention to the environment. Sponsored by Senator Gaylord Nelson (D) of Wisconsin and Congressman Paul McCloskey (R) of California, the event drew an estimated 20 million demonstrators. Prompted by the publication of Rachel Carson's *Silent Spring*, rampant air and water pollution, the view of earth from the first moon landing and the widespread support for Earth Day, Congress established the U.S. Environmental Protection Agency in December 1970 with the mission of protecting human health and the environment.

In 1971 while a senior mechanical engineering college student, I, too, was inspired by Earth Day and led a project team to investigate reclamation of solid waste for a town of 20,000 people (Saugus, MA). The project won a national award, and I made the decision to focus my career on waste management. The changes I have witnessed in the solid waste industry over the past 40 years have been, for the most part, exhilarating and encouraging. Public policymakers who once never gave waste management issues a second look, now grant solid waste directors considerable time and attention. Once overlooked and bureaucratically isolated solid waste operators now receive the training and support necessary to deliver high level customer service as well as management accountability. Waste managers provide services to meet waste management needs now deemed important and manage budgets that are a growing percentage of a jurisdiction's budget. Planning has moved beyond anticipating next week's issues to preparing for the next generation—and increasingly, to awareness of the need to create integrated, sustainable solid waste manage systems. This article shares some observations changes in solid waste management since the first Day and suggests what may lie ahead.

A Change in Public Perception

The perception of waste has changed over the 40 years. Instead of being considered as havir value, there is now widespread public awarenes waste is comprised of multiple commodities value—even as those market values tend to fluc Perhaps even more important, source reduct altering the design, manufacture, or use of pro and materials to reduce the amount and toxic what gets thrown away—has also gained atte Despite the inherent difficulties in measuring s reduction, it is positioned at the top of U.S. waste management hierarchy, and has led to ma substitution and changes in packaging desi well as changes in practices both at home and office to reduce waste. In addition, calls for pr stewardship and sustainability have focused atte on the harmful effects of consumer waste an need to reduce the environmental impact of pro over their lifecycle. In its November 2009 de to promote product stewardship, the National L of Cities adopted a resolution calling for pro responsibility for managing discarded product packaging, urging local and state governme establish producer responsibility legislation.[1]

Recycling

In 1970, we relied almost entirely on local yards to recycle. Today, there are more tha material recovery facilities with an estimatec daily throughput of more than 91,000 tons pe that process a wide range of recyclable materials entry into the marketplace as raw material fee for new products. These facilities vary widely acr

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nation, depending on the materials they process and the technology and labor used to sort materials. Today, we also collect and process yard debris. In 2004, there were 3,474 yard trimmings facilities across the nation,[3] whereas in 1970 we had very few. More than half the nation's population now lives in states where legislation has discouraged the disposal of yard trimmings in the trash.[4]

Residential recycling collection services have evolved as well. The word "recycling" was hardly part of the popular lexicon in the 1970s. But during the 1980s and 1990s, many communities built a recycling collection and processing infrastructure that included curbside collection programs. More recently, communities have added single stream collection where no sorting is required. By 2007, more than 8,600 curbside recycling collection programs were reported, with the most extensive curbside collection occurring in the Northeast.[5] About 50 percent of curbside programs were single stream in 2007, according to one industry survey, which estimated that 62 percent of the U.S. population is now served by curbside recyclables collection.[6] For residents without curbside collection, drop-off centers collect residential recyclables. One report estimated that more than 20,000 communities have drop-off centers, including some communities that also have curbside collection.[7]

In 1970, only 6.6 percent of municipal solid waste (MSW) was recovered for recycling, a number that rose to 9.6 percent in 1980 and 16.2 percent in 1990.[8] During the last decade, recovery of recyclable materials from MSW has increased from 69.3 million tons in 2000 (29 percent of total generation) to 85 million tons in 2007 (33.4 percent of generation).[9] However, in recent years, this national recycling rate has reached a plateau, compared with major increases in the 1990s when many communities built or expanded their recycling infrastructure.[10] Much of this plateau can be attributed either directly or indirectly to economic factors. Budget pressures on state and local governments have led to their inability to sustain high levels of public education, resulting in less consumer participation in recycling programs, especially in the growing number of multifamily housing complexes[11] and in communities that do not offer single stream recycling collection. Many public places and offices do not offer recycling, even though the number of beverage containers and other recyclables is a significant portion of the waste stream in parks, event venues and offices.

Energy Recovery from Solid Waste

In addition to recycling and composting, waste is being converted to beneficial use for its energy content, about half the value of coal on a weight basis. Burning MSW with energy recovery, generally steam or electricity, (referred to as waste-to-energy or WTE) has matured into a safe, effective and environmentally acceptable technology. The proven, basic types of MSW combustion technologies include mass-burn/waterwall combustion, mass-burn/starved air combustion, refuse-derived fuel/dedicated boiler and refuse-derived fuel/fluidized bed. Today, there are about 90 WTE facilities in the United States handling approximately 13 percent of our waste stream and generating more than 17 billion kilowatts of electricity a year, enough to power 2 million homes.[12]

The most recently built MSW-processing WTE facility in the U.S. commenced operations in 1996. Meanwhile, existing WTE facility expansions are occurring in Baltimore, MD; Hillsborough County, FL; Lee County, FL; Honolulu, HI; Olmsted County, MN; and Pope/Douglas Counties, MN. New projects are being developed in Frederick County, MD; Harford County, MD; Palm Beach County, FL; and the U.S. Virgin Islands.

Ando Torrax Gasifier in Niagara, NY
Black Clawson Hydropulper in Franklin, OH
CEA Eco-Fuel in Bridgeport, CT
GarbOil in San Diego, CA
Monsanto Pyrolysis in Baltimore, MD
Union Carbide Oxygen Pyrolysis in Charleston, WVA
Refuse-Derived Fuel (RDF) for electric utility boilers in St. Louis, MO; Milwaukee, WI; Rochester, NY; and Chicago, IL

Table 1
Alternative technologies in the 1970s and early 1980s.
Gershman, Brickner & Bratton, Inc. December 2009.

Landfilling

In addition to waste that is recycled, composted or converted to steam c electricity, 54 percent of the nation's waste is buried in the more than 1,70 highly engineered and regulated sanitary landfills in the United States, with tl South and West having the largest number.[13] Another MSW disposal method mixed-waste composting, which starts with unsorted MSW, removes large iten as well as ferrous and other metals, and composts the remaining, mostly organ materials, such as paper, food scraps, yard trimmings, wood and other material In 2007, there were 16 mixed waste composting facilities in the United States

Given how far we have come since that first Earth Day, what does the futu hold for solid waste management?

Back to the Future: Alternative Technologies

A number of alternative technologies are currently under development the treatment and disposal of MSW. Most of these involve thermal processir but others use biological or chemical decomposition of the organic fraction the waste to produce compost, chemical feedstocks or energy products. Th technologies include pyrolysis, gasification, anaerobic digestion, mixed wa composting, plasma arc and chemical decomposition.[15]

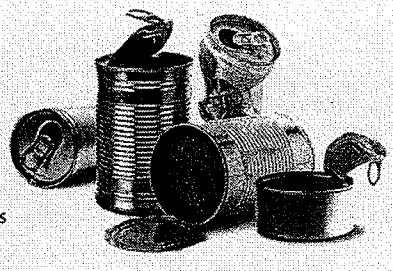
A word or two of caution before we get too excited about these developmer the late 1970s and 1980s saw the emergence of "dream technologies" t many hoped would revolutionize solid waste management. Many of us stud pyrolysis, gasification and plasma arc. We carefully watched as facility a facility attempting to use these technologies in a cost-efficient manner fa (see Table 1). These projects failed for various reasons. For example, in Louis, significant erosion in the coal-fired boilers from introducing i material from the RDF caused additional erosion in the air feeders and ex ash in the suspension-fired boilers. In San Diego, the pilot unit that demonstrated an ability to produce oil from waste did not scale up successf and the oil produced contained excess water that lowered the heating valu about 40 percent of what the pilot showed. In Baltimore, the pyrolysis fac never functioned as designed and again the attempt to scale up from a s pilot plant to 1,000 TPD was unsuccessful.[16]

Recently, New York City and Los Angeles County cumulatively evaluate conversion technologies and found their service fee requirements to range $136 to $900 per ton. These responses also included WTE technologies, v in comparison to the conversion technology responses were at the low e the cost per ton spectrum. Since 1996 when the last green field WTE fa broke ground, no new commercial scale conversion technology facility has implemented in the U.S. However, I am optimistic that a conversion techn will be brought to market successfully in the next three to five years.

Looking to the Future

As for recycling, the collection, processing and remanufacture of recyclable materials clearly has important economic and environmental benefits. The cost to collect and process a ton of recyclable materials is about 20 percent less than the cost to collect and dispose of a ton of MSW.[17] In addition, recycling creates jobs and increases revenues that benefit U.S. communities and their residents. According to the most recent data available, the U.S. hosts 56,061 recycling and reuse establishments that employ approximately 1.1 million people, generate an annual payroll of $37 billion and gross $236 billion in annual revenues.[18] Recycling has significant energy and environmental benefits; it is simply the best method to manage a majority of waste materials. It is now possible to document in a direct and quantifiable way that recycling saves energy and reduces greenhouse gas (GHG) emissions from primary production and disposal, including virgin materials extraction, product manufacture and waste disposal.

Yet, recycling is not living up to its full potential. For many years, a wide range of industry groups have been separately engaged in the issues of recycling and product stewardship. While many companies and industries have taken leadership roles in building awareness of recycling, supporting educational and sponsorship efforts, and promoting and investing in the efficient and effective recovery of recyclable materials, these efforts have been fragmented. If recycling of municipal waste is to realize its full potential, now is the time for industry, businesses, government and consumers to come together to develop a unified national recycling policy framework with legislative initiatives at the national, state and local levels. This legislation must identify appropriate policy goals, incentives, funding mechanisms and accountability to realize the benefits of recycling. There is also a need to



The National League of Cities adopted a resolution calling for producer responsibility for managing discarded products and packaging.

Recycling has significant energy and environmental benefits; it is simply the best method to manage a majority of waste materials.

Today, there are more than 560 material recovery facilities with an estimated total daily throughput of over 91,000 tons per day that process a wide range of recyclable materials for re-entry into the marketplace as raw material feedstock for new products. Photo courtesy of GBB.

motivate consumers, businesses, organizations and governments to recycle—and recycle more—through education, promotion and incentives. WTE is an issue that divides our profession creating, at times, more friction than energy to recover. Some believe that recycling and WTE cannot coexist. Others see WTE as a menace to life and planet. Then there are those, such as myself, who regard recycling and WTE as complementary, relying on data showing that recycling rates are higher in communities with WTE facilities[19] and that WTE emissions are controllable and controlled, and that such plants can provide reliable disposal and renewable energy.[20]

This WTE debate is taking place more frequently in solid waste and political circles for several reasons. First, the Supreme Court has allowed local governments to apply flow control for publicly owned/controlled waste management assets such as WTE plants and landfills. Second, there is heightened interest in lessening the nation's dependence on imported oil and increasing domestic production of renewable energy. Third, we are increasingly concerned about decreasing our carbon footprint and lessening emissions of greenhouse gases to avert global warming.

The U.S. EPA reports that each person generates about 4.5 pounds of trash per day, or about 1,643 pounds per year.[21] The costs for 'cradle to grave' management of this waste, including costs for solid waste services and facilities, range from $100 to $400 per ton, or $82 to $329 per person per year. At the low end of this range is the cost for limited services, such as self-hauling waste and recyclables to a convenience center, while at the high end is the cost per person of a fully integrated solid waste management system. Is $300 per person per year too much to spend, given the environmental benefits of reusing or recycling waste materials and recovering its energy value too? To put that cost into perspective—that is about the equivalent of one fast-food meal per week.

Managing Waste

We need to manage our wastes better, including doing more to reduce the amount of waste generated in the first place and boosting our recycling rate. Current legislative initiatives are a step in the right direction. The Waxman Markey Bill-American Clean Energy and Security Act of 2009 (ACESA)[22] indirectly promotes recycling as a means to address global warming. Executive Order 13514 – Federal Leadership in Environmental, Energy, and Economic Performance (2009)[23] calls on government agencies to study their greenhouse gas emissions and set targets to reduce them by 2020. In addition, the Executive Order establishes a 50 percent recycling goal, 50 percent diversion of non-hazardous solid waste by the end of 2015 and using paper containing a minimum of 30 percent post-consumer content.

But we must do more. We need to work collaboratively to establish nationa goals such as recycling at least 50 percent of our waste, say by 2015, using th remaining waste for its energy value; and establishing economic incentives t encourage the domestic use of recyclable resources. Failure to act will result i a continuation of fragmented policies, recycling plateaus, and too much wast transported and buried in landfills that get further and further away from wher waste is generated in the first place. It is only through a focused, joint effort tha the vision of those first Earth Day demonstrators will be fully realized. | WA

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